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MARK G. BOCCHETTI
EASTMAN KODAK COMPANY
343 STATE STREET
RODCHESTER, NY 14650

EXAMINER	
AFZALI, SARANG	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/691,778
Filing Date: October 23, 2003
Appellant(s): PICKERING ET AL.

Andrew J. Anderson
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/25/2009 appealing from the Office action mailed 8/12/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,159,588	Eddy et al.	12-2000
3,669,707	Donnelly et al.	10-1969

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 64, 65, 69, 70, 86 and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eddy et al. (US 6,159,588) in view of Donnelley et al. (US 3,669,707).

As applied to claims 64 and 65, Eddy et al. teach a fuser member **20** (Fig. 2) comprising a base **4**; and a fusing surface layer **5**; comprising: a fluoroelastomer (col. 6,

lines 25-26); and filler particles (col. 6, lines 27-41), with a modulus greater than the modulus of the fluoroelastomer (modulus is a measure of stiffness of a given material; the filler is made of aluminum, which has a modulus greater than a fluoroelastomer, which is not as stiff) at the fusing temperature, and with a mean particle diameter of at least about 1 to about 100 microns (overlaps the claimed range of at least about 50 microns), in at least the minimum proportion by volume of the fusing surface layer, and with at least the minimum mean particle diameter.

Eddy et al. teach the invention cited above but do not explicitly teach the plastic filler particles are polytetrafluoroethylene filler particles.

Donnelley et al. teach using plastic filler particles such as polytetrafluoroethylene (col. 4, line 66), comprising from about 0.1 to about 20 weight percent (col. 6, lines 18-20, overlaps the claimed ranges).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided the invention of Eddy et al. with plastic filler particles made of polytetrafluoroethylene, in light of the teachings of Donnelley et al., in order to reduce offset and mechanical breakdown as suggested by Donnelley et al.

Regarding the limitations "so that, in fusing toner to substrate, the fuser member generates an image having a gloss number of about 5 or less" and "in fusing toner to substrate, the fuser member, at the equilibrium surface roughness, generates an image having a gloss number of about 5 or less", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior

art. If the prior art structure is capable of performing the intended use, then it meets the claim. The filler particles are heat conducting and have a greater thermal conductivity than the fluoroelastomer because the filler is made of aluminum.

Although Eddy et al. ('588) teach that thermally conductive filler such as metal oxide is added to the fluoropolymer layer (col. 6, lines 25-27), they also teach that other filler particles such as silicon particles are added to the fluoropolymer layer in order to increase release of toner from the fuser member (col. 6, lines 5-7) and **other fillers including coloring agents, reinforcing fillers, and processing aids may be incorporated in the layers provided that they do not affect the integrity of the fluoropolymer material (col. 7, lines 21-33)**. As such, Eddy et al. ('588) teach that many different fillers can be added to the fluoropolymer layer in order to improve certain characteristics of the layer.

Donnelley et al. teach a fuser roller wherein plastic filler particles such as polytetrafluoroethylene (col. 5, lines 8-16) are added to an elastomer for its known release abilities, temperature resistance, and reinforcing properties.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used polytetrafluoroethylene with appropriate particle size as a filler for Eddy et al. ('588) in light of teaching of Donnelly et al., in order to provide an elastomer for a fuser roller with improved and effective characteristics such as high release abilities.

The Examiner considers that a number of variables contribute to the quality of an image having a particular gloss number generated onto any medium or substrate.

These variables are mainly the composition and surface roughness/finish of the substrate, the composition and properties of the toner and the composition and surface finish of the fuser roller/member. Thus, the fuser member of Eddy et al. as modified by Donnelley et al. not only comprises the claimed filler particles with claimed mean particle diameter but that they are present in at least the minimum proportion by volume of the fusing surface layer and with at least the minimum mean particle diameter which provide the fusing surface layer with an equilibrium surface roughness such that it is inherently capable of fusing the toner to the substrate to generate the claimed gloss number of about 5 or less (since, as discussed above, the gloss number is dependent on the substrate as well as the toner used to print the desired image).

As applied to claim 69, Eddy et al. teach that the filler particles, with a modulus greater than the modulus of the fluoroelastomer at the fusing temperature, comprise from about 10 percent by volume to about 20 percent by volume of the fusing surface layer (overlaps claimed range of about 10 percent to about 40 percent).

As applied to claim 70, Eddy et al. teach that the filler particles, with a modulus greater than the modulus of the fluoroelastomer at the fusing temperature, comprise from about 10 percent by volume to about 20 percent by volume of the fusing surface layer (overlaps claimed range of about 8 percent to about 35 percent), and have a mean particle diameter greater than about 55 microns.

As applied to claims 86 and 87, Eddy et al. modified by Donnelley et al. teach the invention cited above, since Donnelley et al. teaches using plastic filler particles such as polytetrafluoroethylene (col. 4, line 66) that comprise from about 0.1 to about 20 weight percent by volume (col. 6, lines 18-20, overlaps the claimed ranges).

(10) Response to Argument

The appellants maintain that the rejection of claims 64, 65, 69, 70, 86, and 87 represent clear error and is specifically arguing the following:

(i) As shown in Table 2 of the instant application, it is shown in Examples 5 and 6 that superior gloss and contamination numbers result for use of such relatively large particulate polytetrafluoroethylene filler particles dispersed in a fluorelastomer layer when compared to use of relatively smaller inorganic particulate filler employed in Examples 1 and 2. This unexpected result is clearly not shown, taught or mentioned in Eddy.

(ii) Eddy only suggests polytetrafluoroethylene and fluoroelastomers as alternative fluoroplastics for use in the outer fusing layer of the fuser member thereof and concludes that Eddy et el. clearly would not suggest use of polytetrafluoroethylene particles of the claimed size for use in a flouroelastomer layer to provide the enabling the gloss advantage taught by appellants.

(iii) The teachings of Donnelley et al clearly would not result in the use of polytetrafluoroethylene particles with at least the minimum mean particle diameter so that in fusing toner to substrate, the fuser member generates an image having a gloss

number of about 5 or less as required by the present claimed invention. The resulting gloss number limitation is accordingly not merely an "intended use" limitation with no structural requirement, but rather relates to a structural difference between the particles employed in the present invention and those of Donnelley et al.

(iv) Donnelly et al. does not overcome such basic deficiency of Eddy et al. and only suggests the use of Teflon for reinforcing silicone elastomer fusing blankets. The particles as employed in the present invention and that of Donnelly are thus clearly distinct, and even if one were to disregard the fact that Donnelly is directed specifically towards silicone elastomer layers, the present invention would not be obtained when combining the actual teachings of Donnelly and Eddy, as there is no support for the Examiner's statement that Donnelly et al teaches that it is well known to add plastic filler such as polytetrafluoroethylene with specified sizes to an elastomer layer, especially in a manner that would retain the particles in a size sufficient to provide the designated gloss values upon fusing. The Examiner has entirely failed to address the contradictory teachings of the present invention and Donnelly et al. Thus, the claimed invention is clearly not taught or suggested by Eddy et al in view of Donnelly et al, as incorporation of polytetrafluoroethylene particles into the fuser member of Eddy et al based on the teachings of Donnelley et al simply would not result in the present claimed invention.

(v) Each of Eddy, Donnelly and the present invention employ different combinations of materials and elements to provide different effects and that the Examiner's proposed combination of Eddy and Donnelly would in fact defeat the basic

purpose of the individual references and as if the combination is proposed only with the improper application of hindsight based on applicant's own teachings.

The Examiner respectfully disagrees with the above arguments. Regardless of Appellant's assertion of "their unexpected result" not being taught by Eddy et al., the Examiner reiterates that Eddy et al. mainly teach a fuser member comprising fluoroelastomer and filler particles. Although Eddy et al. teach thermally conductive filler particles including claimed particle sizes (particles made of aluminum), they also teach that other filler particles such as silicon particles are added to the fluoropolymer layer in order to increase release of toner from the fuser member (col. 6, lines 5-7) and that a whole array of different fluoroelastomers are suitable for the fusing surface layer (col. 5, lines 28-59) in order to improve certain characteristics of the layer besides the thermal conductivity properties of the layer.

Although Eddy et al. fails to explicitly teach the plastic filler particles are polytetrafluoroethylene, the Examiner relies on Donnelly et al. to teach this deficiency. Note that contrary to the Appellants' assertion, Donnelly et al. explicitly teach that it is well known to add plastic filler particles such as polytetrafluoroethylene to an elastomer of a fuser roller considering its known release abilities, temperature resistance, and reinforcing properties (col. 5, lines 8-16) and the Examiner relies on these teachings regardless of the method in which these particles are added or mixed. Note that Donnelley et al. is relied upon to teach the use of the claimed filler composition and mean particle diameter in a fuser member irrespective of how the filler particles are

added and regardless of Donnelley's teaching about the "silicone elastomer", as the Appellants argue.

The Examiner considers that a number of variables contribute to the quality of an image having a particular gloss number generated onto any given medium or substrate. These variables are mainly the composition and surface roughness/finish of the substrate, the composition and properties of the toner, the composition and surface finish of the fuser roller/member, and the environment (i.e. temperature, speed) in which the image is generated. Thus, the fuser member of Eddy et al. as modified by Donnelley et al. not only comprises the claimed filler particles with claimed mean particle diameter but also considering all other variables affecting the gloss number, the combination teach that these filler particles are present in at least the minimum proportion by volume of the fusing surface layer and with at least the minimum mean particle diameter which provide the fusing surface layer with an equilibrium surface roughness such that the fuser member is inherently capable of fusing the toner to a substrate to generate the claimed gloss number of about 5 or less.

Therefore, contrary to the Appellants' assertion that combination of Eddy et al. and Donnelley et al. would in fact defeat the basic purpose of the individual references, the examiner believes that there is a valid motivation to combine Eddy ('588) and Donnelley et al. and as such, it would have been obvious to one of ordinary skill in the art at the time of invention, to have used polytetrafluoroethylene with appropriate particle size as a filler for Eddy et al. ('588) in light of teaching of Donnelly et al., in order

to provide an elastomer for a fuser roller with improved and effective characteristics such as high release abilities.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Sarang Afzali/

Examiner, Art Unit 3726

Conferees:

/DAVID P. BRYANT/

Supervisory Patent Examiner, Art Unit 3726

/Robin O. Evans/
TQAS, Technology Center 3700